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ABSTRACT

This practicum was designed to increase the effective use of technology by language arts students in middle schools involved in independent research activities. Technology was made available to students in the classroom and in the library to use as a resource to investigate and research topics. Seventh grade students (n=57) were given instruction in Boolean searching techniques to use the library's computerized card catalog system and the Internet located in the classroom, and in how to develop a research topic and why following a specific research sequence is desirable. Analysis of the data revealed that students involved in selecting their own research topics met with success. Students were enthusiastic and anxious to use technology to locate sources and material for their ideas. Students were more apt to spend time in the research process gathering information when they were involved in their own topics. Having a clear direction and understanding on how to access information enhanced students' assignments and projects. Recommendations for other educators for establishing systems for students to become managers of their time, independent researchers, and literate technology users are provided. Appendices include student questionnaires; technology usage sign-up sheets; rubric; parent letter; research pamphlet; Boolean handouts; and an online service conduct and ethics statement. (Contains 17 references.) (Author/SWC)

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Effectively Using Technology to Develop Independent Research Topics by Middle School Language Arts Students

by
Leona Jayne Carper
Cluster 73

A Practicum I Report Presented to
the Ed.D. Program in Child and Youth Studies
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Nova Southeastern University
1996

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PRACTICUM APPROVAL PAGE

This practicum took place as described.

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This practicum report was submitted by Leona Jayne Carper under the direction of the adviser listed below. It was submitted to the Ed.D. Program in Child and Youth Studies and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

Approved:

June 30, 1996
Date of Final Approval of Report

William W. Anderson, Ed.D., Advisor

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Abstract

Effectively Using Technology to Develop Independent Research Topics by Middle School Language Arts Students. Carper, Lebna Jayne., 1996: Practicum Report, Nova Southeastern University, Ed.D. Program In Child and Youth Studies. Online Services/Internet Usage/Information Retrieval Teaching/Technology Literacy/Technology Restructuring/Research Instruction/Individualized Learning/Higher Order Thinking Skills.

This practicum was designed to increase the effective use of technology by language arts students involved in independent research activities. Technology was available to students in the classroom and in the library to use as a resource to investigate and research topics. Students were give instruction in Boolean searching techniques in order to avail themselves of the library's computerized card catalogue system and the Internet located in the classroom. In addition, students were given instruction on how to develop a research topic and learned why following a specific research sequence is desirable.

The writer developed an assignment which allowed Language Arts students to select their own topics to research. Instruction was provided on how to research topics and access the Internet, online computer databases, and a computerized card catalogue system to obtain information. Technology was made available for students to complete their reports.

Analysis of the data revealed that students involved in selecting their own research topics met with success. Students were enthusiastic and anxious to use technology to locate sources and material for their ideas. Students were more apt to spend time in the research process gathering information when they were involved in their own topics. Having a clear direction and understanding on how to access information, enhanced students' assignments and projects.

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Chapter I: Introduction

Description of the Community

The setting of this practicum is a middle school located in the Southwestern United States. Between 1954 and 1968, the district grew from one school to eight schools and from 1,200 students to 7,000 students. The area surrounding the school became an elite suburb of large, expensive and semi-expensive single family homes and some expensive apartment buildings. Business in the area increased at a rapid rate and, eventually, it began to change the character of the surrounding neighborhood. Homes began to age and turned into rentals and developers built several lower income apartment buildings. Recently, a major highway was built through the center of the town displacing hundreds of single family dwellings (Chartier, date unknown).

It was during this period that the community experienced a "general economic slowdown . . ., fueled by the sluggish real estate and construction sectors" (National Curriculum Audit Center, 1994, p. 4). The assessed values of property in the area decreased by 14.3 percent and property values decreased by 15.5 percent (National Curriculum Audit Center, 1994, p. 4). Simultaneously, the student population declined from 7,000 students to 3,500 students, and the district was forced to close two of its schools.

Throughout this transition, the district has continued to rank as one of the premier districts in the Southwest. Because of its reputation, the district has a strong base of community support and is known for its committed educators and staff members. The district employs 242 teachers, and nine administrators.

Over the years, the ethnicity of the student population has changed. Currently, the district has 4,270 students enrolled. The State University's Demographic Study (1994) projects that the student population for the district will increase to 4,700 students by 1999. The ethnicity of the student body is as follows: 74% White, 14% Hispanic, 4% Black; 3% Pacific Islander/Asian, and 5% American Indian. Thirty-three percent of the student body receive free or reduced lunch and there is a 42% mobility rate ("School Profile," 1995).

In March 1995, voters approved a $10 million technology bond for the district. With the approval of this bond, technology will be placed in every classroom in the district. The implementation of these technological improvements will be completed over the next three years.

Description of the Work Setting

The practicum was conducted in one of the district's three middle schools. This middle school is the original school for the district and is situated next door to the district office. The children are in grades five through eight. There are 745 students, 47 teachers, and two administrators ("School Profile," 1995). The ethnicity of the school's student body is as follows: 72% White, 14% Hispanic, 9% Black, 3% Pacific Islander/Asian, and 2% American Indian. Twenty-three percent of the student body receive free or reduced lunch and there is a 32% mobility rate. It is projected that the student population will increase to 841 students by 1999 (Blue Ribbon Task Force, 1994). The parents are actively involved in the school, and the staff is dedicated to its students.

Technology is generally available in the school. The school's library has a multimedia center. Online research services are available in the library. In addition, technology has been implemented in the classroom. The classroom is equipped with six

IBM computers. Online services to the Internet through Scholastic, Inc. are available in the library and the writer's classroom. There is a variety of word processing and presentation software available for student use.

Writer's Role

The writer is a seventh grade teacher of Reading and Language Arts to regular, advanced, and gifted students. The writer has been actively involved in establishing and evaluating the use of computer technology in the classroom setting.

The practicum was conducted in the seventh grade Advanced and Gifted Language Arts classroom. Fifty-nine students were involved in the practicum. Thirty-seven of these students were identified as gifted by the school district. Thirty students were in the fifth and sixth periods of the Language Arts block. Seven identified gifted students were in the first and third periods of the Language Arts block. The Language Arts block for the first and third periods was referred to a "slash" class. A slash class is identified as a split class between gifted and advanced students. Gifted students are placed in "slash" classes because of limits to class size. Students are identified as gifted if they score 97% or higher on the Cognitive Abilities Test (COGAT) and receive an eight or nine stanine on the Iowa Test of Basic Skills (ITBS). Twenty-two students were considered advanced students by the district. Students are identified as advanced if they score between 94% and 97% on the COGAT and receive a seven stanine on the ITBS.

Chapter II: Study of the Problem

Problem Statement

The problem addressed in this practicum was that seventh grade advanced and gifted Language Arts students were not effectively using technology in their research topics or in completing their assignments.

Problem Description

In a classroom assignment given in October 1995, students did not use available technology to investigate and prepare their research projects. In looking for topics to study, students did not use the library's computer card catalogue. Students ignored the online Internet services that were also available for locating information. These students relied on books, encyclopedias, and magazines to gather information rather than using the Internet to search for primary information. In completing their outlines, students preferred handwriting over the use of computer word processing tools in completing their assignments.

During the assigned library time for a research project, this writer observed and recorded that the children did not effectively use the available technology to research their topics. Fifty-one students out of 54 students did not use any online services to research their topics (the discrepancy in numbers is due to the recent addition of students in the morning block). Twenty-eight students out of 54 students did not use the library's computer card catalogue. This writer observed these students going directly to the stacks of books on the library shelves. In addition, students asked to use the manual card catalogue when they were unable to find their material on the library shelves. When the students had

completed their research, they did not avail themselves of the technology in the classroom to complete their outlines.

Problem Documentation

Although many students had had some exposure to computers, very few had actually used an online service to research a topic. In the beginning of the school year (1995), this writer gave out questionnaires (see Appendix A) to the students. Fifty-two questionnaires were completed by the students. Two children were absent on the day the questionnaire was given. The results of this questionnaire were as follows:

1. Forty-five out of 52 students owned a computer.

2. Twenty-seven out of 52 students had access to an online service.

3. Fourteen students had used the computer to complete an assignment.

4. Twenty-two students felt that they knew how to explore the Internet to obtain information for an assignment.

5. Nineteen students had taken a computer class.

6. Thirty-six students had typically used a computer for word processing.

7. Twelve students had typically used a computer for games.

8. Twenty-nine students responded that they had begun using a computer by age seven or younger.

9. Only one child had used the computer for an online service.

The responses to the questionnaire indicated that the majority of the children had a computer available for their use at home. However, the computer was used almost exclusively for word processing and very few students had actually utilized any online service.

Many students were unfamiliar with any specific sequence for researching topics. In addition, it appeared that students were generally unaware of why a specific sequence of research would be helpful. During third quarter, this writer gave out a questionnaire (see Appendix B) to the students regarding their methodology for researching a topic. Forty-five questionnaires were completed and returned by the students. The results of this questionnaire were as follows:

1. Twenty-one out of the 45 students indicated that they did not follow any specific sequence in researching a topic.

2. Five out of the 45 students indicated that they had never been shown how to research a topic.

3. Thirty-five out of the 45 students indicated that they had never used a computer in researching a topic.

4. Thirty-two out of the 45 students were unable to explain why a specific research sequence might helpful.

Causative Analysis

Based on the information gathered and documented in the section above, there were a number of causative factors: (a) online access was not available to many of the children; (b) children were not familiar with how to utilize a computer to research a topic; (c) children were generally not familiar with why a specific research sequence might be helpful; (d) children did not know how to obtain primary information from online services; (e) children did not know how to narrow the scope of information obtained; (f) instruction had not been devised to integrate technology research activities; and (g)

research instruction had not identified specific areas within which to locate sources or topics.

Because technology had only recently been implemented in this school, students were unfamiliar with how to use the services that were currently available to them. In observing how the children began their research process, it became apparent that they were more comfortable going directly to an encyclopedia or book that they thought might have the information that they needed for their topic. Informal discussions with the students indicated that they all believed that research could be limited to locating specific information about their topic in encyclopedias and other such secondary sources.

From these observations, it was clear that students had not been shown how to properly research a topic, let alone how to utilize technology to improve the quality or speed of the research. In addition, since technology had not been implemented in every classroom, some teachers had not been trained to fully integrate technology into their curriculums and to instruct students on how to use this resource in researching topics.

Relationship of the Problem to the Literature

A review of the literature suggested that others had been concerned with how technology was used in schools and how students were being trained. O'Brien (1991) believed education resembled a factory model. This model goes back to a time when schools were built to educate large numbers of students. The teacher was the focus of the student's attention and dispensed information while the students sat passively in their seats receiving facts and other information that would be recalled at a later time. It is still apparent in most classrooms that the traditional lecture is prevalent (Chambers, Mullins,

Boccard & Burrows, 1992; O'Brien, 1991). The lecture still dominates classroom methods, even when technology has been implemented in the classroom.

Many teachers are unsure how to use computers as a resource. In fact, Chambers, et al (1992); Mcadoo (1994); and Peck and Hughes (1994) have shown that in the past computers have been used strictly for drill and practice. In this scenario the computer has become the teacher. The learning process is a little more interactive but for the most part, the student still passively receives information from the computer and recalls it in a faster manner. In drill and practice, the student is not called upon to analyze or use higher order thinking skills with the computer. Instead, the student is required to answer rote questions as they appear on the computer screen. Mcadoo (1994) also agrees that computers have been used for many forms of remediation work rather than for any type of creative writing or simulation work. If teachers expect children to be able to reason effectively and to apply the information that they receive, it is important that teachers go beyond this basic use of the computer. In addition, the learning style of each child is different and using the computer in this manner can potentially hamper the student's ability to learn and become an independent thinker (Alvestad & Wigfield, 1993).

D'Ignazio (1993) believed that "schools are creating electronic dirt roads" (p. 633). In other words, the classroom is still a separate and isolated entity, except now technology has been installed for the children's use. However, the technology is being used more as a standalone resource rather than an integral part of a teacher's curriculum. Teachers have failed to show the students how technology can enhance their learning. O'Brien (1994) and Luehrmann (1990) believed that teachers are still more involved with

delivering information. Teachers seem to want to control the information they impart to their students. One of the causes of students being unable to discover learning for themselves is the teacher's inability to let students move beyond just being a receiver of information.

Instruction must move beyond "teacher talk" and teaching practices that are outdated and ineffective (Bell & Elmquist, 1992). Ineffective teaching methods are contributing to students being passive learners. Luehrmann (1990) pointed out that in the last several years there has been a major information explosion. It is impossible for a teacher to keep up with all of the current information available. Teachers need to change the instruction and make students more responsible for their learning (Mcadoo, 1994). Failing to allow students to be active learners and failing to teach them to be responsible for their learning contributed to students did not knowing how to use the resources that were available to them.

The literature review established that many experts are concerned with why students seem unable to pursue their own independent work utilizing available technology. The review also confirmed that students are passive learners and have not been allowed to become actively involved in the learning process. The review further suggested that for students to be actively involved in their learning, teachers must go beyond dispensing information and using the available technology as another means of rote learning. Students must be taught how to work independently, and teachers must allow their students to engage in this form of active learning. Bell and Elmquist (1992) found that the school system was rigid. By allowing students and teachers more freedom, students will be the beneficiaries of managing the information available to them. Teachers and

students do not have to continue an educational system that still resembles a factory model.

Chapter III: Anticipated Outcomes and Evaluation Instruments

Goals and Expectations

In general, the goals of this practicum were to have students use technology as a tool to investigate and research topics. The following subgoals were also projected for this practicum: (a) children would be able to use online service to research topics; (b) during a two week period, children would be able to use the library's computerized card catalogue system; (c) students would pursue a specific sequence for researching topics; and (d) students would be able to explain why using a specific sequence is helpful.

Expected Outcomes

1. By the end of the implementation process, 26 of the 59 students would have used an online service to research a topic.

2. By the end of two weeks, 40 of the 59 students would have used the library's computerized card catalogue system.

3. By the end of the implementation period, 15 out of 59 students would know and be able to list from memory a specific sequence of research topics.

4. By the end of the implementation period, 10 out 59 students would be able to explain why a specific sequence is helpful.

Measurement of Outcomes

Each outcome of this practicum was assessed and measured by using observations, printouts, tests, and a rubric. Specifically, each outcome was assessed and measured as follows:

Outcome 1. The outcome that 26 of the 59 students would use an online service to research a topic was measured by using a chart that monitored students' use of the online services available in the classroom and library (see Appendix C).

Outcome 2. The outcome that 40 of the 59 students would use the library's computerized card catalogue system was measured by the teacher observing and recording on a log the number of times students used the computerized card catalogue (see Appendix D).

Outcome 3. The outcome that 15 out of 59 students would be able to list, from memory, a specific sequence of research topics was demonstrated by a test given to students. At the completion of students' research projects, the students were asked to list, in order, the research sequence necessary to research topics.

Outcome 4. The outcome that 10 out of 59 students would be able to explain why a specific sequence was helpful was measured and documented by the teacher using a rubric (see Appendix E) to assess the progress of individual students in achieving the desired outcomes.

Chapter IV: Solution Strategy

Discussion and Evaluation of Solutions

A number of educators have offered various points of views and solutions as to why students do not use technology effectively to research topics. Many of these same educators have also provided ideas on how to get teachers to instruct students to use available technology for their papers.

Luehrmann (1990) advocates having students become literate users of technology. He believes that teachers should offer students a wide variety of opportunities to acquire computer skills. In addition, Luehrmann also believed that students need to become managers of their learning rather than receivers of information. To accomplish this goal, students would need to be taught how the computer can be used as a powerful resource for learning.

Bell and Elmquist (1992) believes that the teacher should facilitate the child's learning rather than be a dispenser of information. These researchers concluded that students need to be involved in independent work and learn how to become an independent learner. For the student to become an independent learner, the teacher would need to develop lessons that require independence, such as the use of videodiscs for instructional purposes.

Peck and Dorricott (1994) advocates the use of technology as a way for students to access, evaluate, and communicate information. They felt that students should begin to use the computer first as a writing tool. Eventually, as the student became more proficient

on the computer, the student would move to the next higher task. These tasks might include solving highly complex problems or interacting with the computer in a simulation.

Crompton (1992) indicates that students need to be prepared with skills that will allow them to access and utilize information. She felt that students needed to learn information retrieval skills. In addition, she also felt that students needed to be taught how to search for materials. Crompton advocates using the Boolean searching method and felt that every student should be proficient in this research technique. She also believed that students needed to be shown how to think critically. Once a student had developed critical thinking skills, the student then could move on to applying these skills in a creative application.

Genshaft, Birely and Hollinger (1995) suggests that gifted students should be involved in individualized learning. They took the position that a gifted child should pursue an independent research project of their own choosing. In addition, these researchers felt that a student should be allowed to work at their own pace.

Chambers, Mullins, Boccard and Burrows (1992) felt that providing an electronic classroom offered opportunities for higher order thinking. In this environment, a student would be able to learn how to think critically. Also, this type of environment would allow more freedom for discovery and learning.

Description of Selected Solution

This writer gained insight into her practicum from the review of the literature. It became evident that students need to be involved in an individualized project. In developing this project, students need to pursue their own interests if they are to make

gains in the learning process. Furthermore, the teacher needs to step aside and function more as a facilitator in this learning process.

The learning process can be enhanced if students are provided with the necessary tools to assist them in their projects. For example, students need to be given instruction on how to pursue an inquiry method of research. Students also need to be taught searching methods (Crompton, 1992).

Report of Action Taken

In anticipation of implementing this practicum, this writer secured the approval of her administrator to conduct this project. In addition, the administrator of this middle school authorized the use of 80 hours of online service through Scholastic, Inc. The administrator also authorized the installation of a telephone line for access to the service in this educator's classroom. The telephone line was installed by the district office in December 1995. The writer already had the necessary computers, telephone, and modem to provide access to Scholastic, Inc. for her students.

During parent/teacher conferences, this educator informed parents of the pending project and that students would be using the Internet to research topics. The parents had expressed enthusiastic approval for their children to be involved with this project. When the practicum was approved, this educator sent a letter to all parents of students involved with the project (see Appendix F) informing parents that their children would be involved in a research project this semester using an online service.

After receiving the letter, ten parents contacted the educator to express their delight that their children would be involved in using the Internet to research. One parent even commented, "This is the first time my child has been involved with a research paper

that was practical and uses current information." All of the parents who contacted this educator looked forward to the end results of their child's report. Two parents asked that they be notified regarding the topic selected by their child.

Initially, students were asked to come up with preliminary topics that they might be interested in researching. The students were asked to state their topic as a thesis statement and submit their thesis to this educator for approval.

Before research topics received final approval, this educator provided instruction on developing a thesis statement. Even though the children had prior knowledge on how to develop a thesis, this educator found the students still needed practice on how to write an effective thesis and on how to phrase a thesis statement as it related to their topics. In addition, how to develop a thesis statement became part of the research pamphlet prepared by this educator and distributed to the students (see Appendix G).

After the students received final instruction on developing a thesis statement, students submitted their thesis for final approval. Based on their statements and areas of interest, the teacher determined if the student would work on their project individually or with a partner. The research ideas showed a great deal of variety and interest. A sample of some of the topics chosen included Juvenile Diabetes, computer hacking, modern dancing, skate boarding, animal research testing, and theatrical stage lighting. Most of the children selected topics that could be researched effectively using an online service. Two students wanted to research topics involving spiritual phenomena and palm reading. Because of the nature of the topics, parents were contacted before prior approval was given. Consent was given for two of the students to pursue their interest in palm reading. The children who had selected spiritual phenomena as a topic were encouraged to

resubmit a more acceptable topic to pursue. After several days, these students decided to changed their topic to hypnosis, and they were given approval to research this area.

Fifty-seven students were involved with the project at the start of the program (two children moved away before the practicum was implemented). Out of the 57 students, 9 pairs of students were given permission to work together on their research topics. Thirty-nine students were involved in individual research topics of their choosing.

While the students were in the process of selecting topics, the librarian provided two hours of instruction in Boolean searching. Handouts (see Appendix H) were provided to the students to complement the librarian's instructions. This instruction proved to be very effective for the children. Incidental to the librarian's instruction on Boolean operations, the math instructor was teaching the children Boolean Algebra. The children came back to class and said, "We didn't realize that there could be a connection between math, library, and English." Later in the day, the math instructor stopped by and indicated that this educator's students were further along in math because of the instruction they had received from the librarian on Boolean operators and Venn diagrams.

The librarian also indicated to this educator that she had changed her computer system to search three words rather than two in a Boolean search. During practice time on the Boolean search, this change proved to be more effective for students. Some of the students indicated that they were better able to narrow their topics and found that this change improved the effectiveness of their search activities.

While the students were finalizing their topics, a management plan (Research paper checklist) was developed and handed out to the students. This plan was incorporated as part of the students' research pamphlet (see Appendix G). Aside from the checklist and

developing a thesis statement, the pamphlet also provided information on how to develop a preliminary bibliography and outline, and how to take notes. Students were required to keep this pamphlet in their notebook and record the various assigned components of their research paper on the checklist. The pamphlet also served as a guide for students to list the appropriate information when developing their bibliographies. Individual instruction was provided to students on how to document sources of online information.

Before the students were given permission to go online to research topics, this educator realized that there was no Code of Ethics for using the Internet by students. Therefore, a Conduct and Ethics Statement was prepared (see Appendix I). This Conduct and Ethics Statement was approved by the Principal and the Director of Technology for the district office. All students using the Internet were required to sign the statement prior to going online.

Because the students were required to sign an ethics statement, they were more conscious of the consequences that might arise if they used the Internet for other than academic purposes. When students were in doubt about any information they were receiving on the Internet, they always asked for this educator's assistance. For instance, one student was looking for information on the A.I.D.S. virus. She was using a chat line to obtain some primary data. During her discussions, the person she was chatting with indicated that she was a nurse and had statistical information that could be helpful in this student's report. The nurse requested a mailing address or fax number. Before the student provided this information, she inquired of this educator how to handle the situation because she did not want to get into any trouble because of the ethics code. This educator had her e-mail the educator's home fax number so she could monitor the

information received. The information turned out to be "legitimate," and the student obtained up-to-date statistics that were helpful in preparing her report.

When students were getting ready to use the online service to research, this educator provided verbal instructions on how to use the service and worked with students individually to ensure they knew how to get into the service. During this phase of the effort, one of the students went into the "Help" section under "Resources" in the America Online service. In this section, the student discovered "Que's Computer and Internet Dictionary." When one logs into this section, there are three search vehicles to guide a user through the Internet process: (a) Search Dictionary; (b) Browse Dictionary; and (c) Superlibrary. The Search dictionary allows a user to put in a keyword and explore a series of topics related to the keyword. The Browse dictionary is similar to a keyboard, with letters from A to Z. When the user presses on a letter, all of the words under that letter appear, and the user can then log into the word they needed information on and the definition appears on the screen. The other service provided in the help section is the Superlibrary. When the user goes into this section, the user has the ability to select various search tools such as reference desk, yellow pages, site map, and search techniques.

This help service proved to be invaluable to the students. It allowed students to locate and explore interesting search vehicles. In addition, if a student asked a question about a "gopher" or an "Archie" service, this educator was able to direct the student to the online dictionary and search service. This educator found this online service to be more valuable than developing a pamphlet on using an online service. At this point, the student was actively engaged in using the Internet. As questions arose, it was easy and effective to refer the student to the dictionary service. Since the students enjoyed working

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on the computer, they were more apt to use the help service than to leave the computer to look up material in a dictionary. Also, this educator found the computer's help and search material to be very thorough and felt that students used this service because it kept their interest.

In the course of students researching their topics, this educator became aware that there were about four students in each class who were very adept at using the Internet, knew a lot of shortcuts, and knew how to search topics through various Web sites. These "expert" students became tutors for other students. When a student was unable to locate a topic and the dictionary resource online was inadequate, the student would call upon one of the student tutors for help. These student tutors allowed this educator to work with students who were not using the online service. The students also appreciated having their peers work with them, and the student tutors developed a sense of pride at their ability to help students in their online searches. All of the students were able to complete their searches in the timeframe provided. Between using the help resource and the student tutors, this educator felt that it was unnecessary to develop a pamphlet, and all students had enough material to write their reports.

While the students had success in locating their material, searches did not always go smoothly, especially for the afternoon class. Sometimes when a student would log into the computer, the service would be terminated in the middle of a search. This was troubling at first because this educator could not determine the cause of the termination. In researching the problem, the educator realized that the telephone line used for the modem hook-up was the same line that was located in the library. Whenever the library phone rang and someone picked up the phone, the service to the Internet would be

terminated in the classroom. In discussing this situation with the librarian, it was discovered that more vendors tended to contact her after lunch. Since there was no way to control these calls, this educator had the afternoon class mark down the keyword and place they found when they were searching the Internet. Then, if the student's search was interrupted, the student did not spend unnecessary time trying to determine where they were in their search.

The morning class also experienced a problem using the Internet. Occasionally, when the student wanted to go into a particular Web site they were unable to go in because of heavy traffic. This heavy traffic seemed to occur between 9:00 and 9:30 a.m. After 9:30, the students did not experience as much difficulty getting into a Web site. There was little the class could do to control this situation. This is a problem that can occur anytime while someone is using the Internet because of the volume of users. When the students were confronted with a traffic problem, they were instructed to try other search sites or to explore the Help section to further their knowledge of the Internet.

Students were requested to sign up to use the Internet and were limited to 15 minutes on the Internet. This system was very effective and allowed more students to use the service. When students needed additional time, the students made arrangements to come in before or after school or during their lunch time. Some of the students had access to an online service at home. These students would use their service, thereby freeing up time for students who did not have access to an online service at home. Also, because the student tutors were always working with students to make their searches more effective, students who had online services at home but were not as familiar with searching

techniques were able to ask questions of the tutor and get specific help in a few minutes. The entire system worked very well.

In the third week of implementation, this educator attended a technology meeting at the district office. One of the parents present at this meeting was very interested in this project. During our discussions, this educator indicated that the project was going well but that the librarian's online magazine service had ended and that the district had not renewed this service because it cost $800. The parent indicated that they felt this service was essential to middle school students conducting research. Within the week, the parent had made arrangements with EBSCON Online Magazine Service to donate this service to our school so that the students would have additional material to use in their research papers. This online service had additional benefits to the project. During the day, the librarian allowed five students at a time to come to the library to use the magazine online service. When a student accessed this service, using a keyword, full text articles would come up on the screen. The student was then able to print a copy of the article to use in their research papers. This service allowed more children to use technology on a daily basis to complete their projects.

Some students needed to use the telephone to conduct interviews for their papers. At the beginning of each hour, students who needed to use the telephone would sign the log to use the phone. Children who needed the telephone would go first before the children who needed the online service. One doesn't always think of the telephone as modern technology, but in a classroom situation it can be a valuable tool. Students were able to contact individuals in business who could provide information on their topics. Students would prepare their questions in advance and then conduct telephone surveys

over the telephone. Students began to understand that the telephone was a way to obtain relevant information for their reports. Most businesses were receptive to the students calling to obtain information for their reports. One student reported that a businessman indicated that he was delighted that the schools were making productive use of available resources for students' use. This was very exciting because the students were beginning to understand that the best research reports were those that incorporated primary information within the topic being researched.

Throughout the project, students would type their notes or sections of their reports on the computers. The material was captured on computer discs for the students to have the flexibility of finishing their reports either at school or at home. In addition, if the student worked at home on their report, the student would save their material and bring it to class the next day to work on during the period. By effectively using the resources available to the students at home and at school, all 57 students turned in their draft reports on time for review. The papers were evaluated and returned for corrections and final submission.

During the last week of school, students submitted their final research papers and created products that were displayed and shown to students and faculty. The projects were a lot of fun and demonstrated how much information the students had obtained in doing their research projects. One pair of students had done an anecdotal research paper on soldiers who served during the Vietnam War. These students put together a multimedia project which included clips of the war, overlaid with voices of soldiers who had served in the War. In addition, these students also invited a guest speaker who talked about the war and showed the students pictures, his uniform, and medals.

In another presentation, two students who researched palmistry and interviewed a palmist, dressed up in oriental type of pants, headbands, and gaudy jewelry. These girls spent time, discussing the history of palmistry and conducted "readings" for a couple of their classmates.

Another student had done a report on turtles. The student brought in a turtle and presented aspects of his report while students held the turtle. There were other unique presentations including a comparison of modern dance from examples of movie artists to a live dance performance by the student, a unique diorama on dolphins, and an "Oprah" style discussion on fetal alcohol syndrome. All of the presentations showed the varied aspects of the students' reports and showed the information each student was able to collect during the twelve week period.

In exit interviews, two students reported that they felt they did more work than their partners. To solve this dilemma, this educator discussed the research papers with each of the nine pairs. During discussions, each partner was asked to indicate what he or she had done on the report and to indicate whether or not they felt each deserved the grade given on the report. This discussion enabled the partners to express any concerns they might have about the amount of work they performed on a topic. In addition, it enabled the partners not to have to confront each other if there was a problem, because this educator served as a mediator. In two cases, the discussion proved that one partner had done more work, and the other partner came to consensus on what grade they felt they deserved. This process worked well because it allowed each partner to discuss their work without "hard feelings." By discussing their grades, students were able to come to their own conclusions on what grade they felt they deserved. This educator had not

considered this problem before the implementation began but found that by allowing the students to discuss their projects, the students were able to make fair decisions and feel better about those decisions.

After evaluating all of the reports, tests, and presentations this educator found that students were very enthusiastic in researching a topic of their interest. One student said, "It doesn't seem like we were doing real work. This has been really fun, and it is the first time that I have been interested in doing a paper." Another student wrote, "I really liked showing the class what I had researched. It was a lot more interesting than just reading my report in class." From this educator's point of view, students were on task and were able to make decisions on effectively using their time. Students were given choices to select their topics, to go to the library, to work online on the computer, to type their reports, or to just think or read at their seats. The end result of this effort is that this educator will develop more individual research topics for students next year.

Chapter V: Results, Discussion, Recommendations, and Dissemination

Results

The problem addressed in this practicum was that seventh grade advanced and gifted Language Arts students did not effectively use technology in their research topics or in completing their assignments.

The solution strategy was to involve students in an individualized research project using technology to facilitate the research project. This strategy was accomplished by providing students with knowledge and the necessary tools to complete their projects. The students were also provided with instruction on how to pursue an inquiry method of research and what search methods were available for students to use in their research.

The following outcomes were projected for this practicum.

1. By the end of the implementation process, 26 of the 59 students would have used an online service to research a topic.

This outcome was met.

Fifty-seven students were able to use an online service to research a topic. (The discrepancy in the number is due to two students transferring schools prior to implementing the practicum.) Students were able to access information from Scholastic, Inc. as part of the America Online program in the classroom. In addition, students also had access to the EBSCON Magazine Online service in the library.

2. By the end of two weeks, 40 of the 59 students would have used the library's computerized card catalogue system.

This outcome was met.

Fifty students accessed the library's computerized card catalogue system. After receiving instruction on the Boolean research method, students were given time to practice searching topics for their reports. Students who were unable to use the computer during the allotted timeframe were able to go to the library the next day in groups of five to use the computer to search their topics. Most students availed themselves of this opportunity to use the computerized card catalogue.

3. By the end of the implementation period, 15 out of 59 students will know and be able to list from memory a specific sequence of research topics.

This outcome was met.

Forty-two students were able to list the specific sequences to use in researching topics. This educator administered a test after students completed their final report that covered all aspects of the research project. Students were able to demonstrate their knowledge of research methods. The 15 students who were not successful in accurately listing a research sequence still demonstrated that they had a strong understanding of how to approach a research topic. Once again, the actual number of participants in this practicum was 57. Two students transferred prior to the implementation of the practicum.

4. By the end of the implementation period, 10 out of 59 students would be able to explain why a specific sequence is helpful.

This outcome was met.

Thirty-two students were able to offer an accurate explanation of why a specific sequence is helpful. All of the students who participated in this practicum provided explanations on why using a specific sequence was helpful. However, while many of the

students provided explanations, this educator felt that only 32 students had a thorough understanding of how to develop a research topic.

Unexpected Outcomes

During a technology meeting at the district office, a discussion ensued about this educator's practicum using an online service. A parent who attended this meeting asked if the students had access to a magazine service. This educator explained that the library had used a magazine online service at the beginning of the school year, but due to the $800 cost, it was unable to renew its service. The parent indicated that he had contacts with vendors who provided this type of service, and he would make a few calls to see if a service could be provided for a trial basis. Within one week, this parent was able to have EBSCON Magazine online service implemented for the balance of the school year.

This magazine service allowed students to have additional technology to research their topics. In addition, this service allowed students to have a choice to either use the classroom's Internet service, go to the library to research current articles on their topics, or use both services to enhance their reports.

Another surprise experienced during this practicum occurred when this educator was getting ready to develop a pamphlet on how to use an online service. One of the students was "surfing" the resources available through America Online. This student clicked on the Help icon and discovered "Que's Computer and Internet Dictionary." This guide has three separate search vehicles: (a) Search Dictionary; (b) Browse Dictionary; and (c) Superlibrary. The Search Dictionary allows a user to put in a keyword and explore a series of topics related to the keyword. The Browse Dictionary is similar to a keyboard, with letters from A to Z. When the user presses on a letter, all of the words

under that letter appear, and the user can then log into the word they need information on and the definition appears on the screen. The other service provided in the help section is Superlibrary. When the user goes into this section, the user has the ability to select various search tools such as reference desk, yellow pages, site map, and search techniques. All of these search tools enable the user to obtain complete and accurate information on locating sources, obtaining definitions for computer and Internet terminology, and additional search aides to make the research process easier and more efficient. In addition, this interactive process kept the students' interest throughout the research process.

The third unexpected outcome was the use of student tutors. In each class, there were approximately four students who had extensive knowledge on how to "surf" the Internet. These students volunteered to become the experts and spent time with students unfamiliar with computers or the Internet and helped their classmates navigate through the Web sites to obtain information for their research projects. These students were an invaluable asset. The tutors allowed this educator to spend time with students who needed help writing their papers. The students felt comfortable working with their peers and were able to establish positive relationships that might not have formed otherwise.

The last unexpected outcome came with the overall success of the research project. In the beginning, this educator was concerned that a twelve-week research project might be too long for seventh grade students. There was a fear that students might lose interest in their projects and their work might suffer. However, the students became interested in conducting research. In informal interviews, students mentioned that they liked the research because they were able to choose projects they were "passionate" about. The students also indicated that they "enjoyed surfing the net" and that, too, kept

them from becoming bored with their projects. Lastly, the students were able to develop any type of project to show their classmates what they had been working on during the last quarter of school. Students mentioned that this was "more creative than just reading their reports to the class." Allowing students to select their own topics, rather than assigning topics, has definite benefits. This type of assignment will be given again to next year's students.

Discussion

The students' enthusiasm and interest in their research projects was one of the greatest benefits of this practicum. All of the students involved in the project turned in their draft reports and final reports on time. This was the first time this year that all students had their work in on the requested due date.

The literature review for this project indicated that most students are passive learners who have not been given opportunities to become actively involved with their learning. The experts in this field suggest that teachers must allow students to engage in projects of their choosing and interest and become independent learners (Bell & Elmquist, 1992). This educator's findings support these opinions. Students are interested in learning, provided they are given some latitude to select their own topic. When the teacher refrains from dispensing information, real education can take place because students want to be actively engaged in learning.

Several researchers have indicated that for students to become literate users of technology, a wide variety of computer skills and techniques should be offered. In addition, researchers believe that if students are given specific instruction on how to

successfully retrieve information, they gain an ability to think critically and apply this knowledge to other situations (Luehrmann, 1990; Crompton, 1991; and Peck & Dorricott, 1994). Providing instruction on the Boolean operators and allowing time to practice was very important for the students to understand how to retrieve information. The Boolean operators allowed students to narrow their topics and successfully retrieve their information quickly and efficiently. Students gained valuable insight on how the use of keywords could help them gain access to the particular subject area they were researching.

Genshaft, Birely and Hollinger (1995) suggest that gifted children benefit from individualized learning. This practicum involved both gifted and advanced students, and this educator found that all of the students benefited from pursuing their own selected topics. In addition, the practicum was set up so that students were able to decide how to structure their time. This also proved to be beneficial. If a student felt like "surfing the net," the option was available. Likewise, if a student needed time to think about their project, that option could also be handled within the classroom setting. As Luehrmann (1990) points out, students need to become managers of their learning rather than receivers of information.

Advice provided by Mcadoo (1994) and Alvestad and Wigfield (1993) proved to be instrumental in implementing this practicum. These authors suggest that when teachers use computers for drill and practice, children are inhibited from reaching the higher order thinking skills that are required to become independent thinkers. This definitely seems to be the case! The students enjoyed thinking. This educator had time to reflect and watch the students work on their topics. It was evident from the intensity on their faces that they

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were interested in their projects and wanted to produce quality work. Drill and practice may have some practicality in certain situations, but it became evident that students want to explore on the Internet and find information that has not been available to them during past research projects. Students seem to relish opportunities to actively learn. Providing opportunities for students to view computers as one resource to achieve this goal is a step in the right direction.

Recommendations

The following recommendations are offered to other educators desiring to establish systems for students to become managers of their time, independent researchers, and literate technology users:

1. Provide an online information service, such as Scholastic, Inc., through America Online, in the classroom.

2. Dedicate a telephone line solely for purposes of accessing the Internet so that other users cannot disconnect the system.

3. Instruct students in Boolean searching methods. This technique will assist children in narrowing their topics.

4. Practice developing thesis statements with students. The thesis is an essential element of the research process. When students understand exactly what they are researching, there is clarity and the steps to reach their goal become very easy to grasp.

5. Develop flexibility in lesson plans. Allow students to choose what part of their assignment they need to work at any given point in time. This increases interest and helps students learn to manage their time and their projects more effectively.

6. Develop a conduct and ethics statement prior to students having access to the Internet. This document establishes guidelines for using the Internet and the consequences for abusing the system.

7. Train students to become familiar with the various resources available on an online service. The help resources provided by an online service are thorough and contain a tremendous amount of information that can be easily accessed by the student.

8. Train students as peer tutors. Students who are familiar with computers and databases can remain an untapped resource in the classroom. These students can earn the respect of their peers by their computer knowledge as well as free the instructor to do other tasks with students.

9. Allow and encourage students to choose research topics that they find interesting or topics they are passionate about. Students enjoy thinking and being actively engaged in the learning process. When they have the ability to focus attention on projects that they are interested in, students become active participants in the learning process.

10. Work closely with the librarian to establish procedures so students can use the library on an as-needed basis. This kind of flexibility can be an important aid to the student and the teacher.

11. If possible, obtain an online magazine service through the library. If the school is financially able to obtain an online magazine service, the benefits for middle school children are substantial. Students involved in research need access to up-to-date sources to incorporate in their projects. The magazine service can replace subscriptions to magazines and allow students more flexibility to further their independent research efforts.

12. Instruct students on how to interview sources to obtain primary material for their projects. When students can develop questionnaires and surveys to obtain primary information, their research reports become "real," and they provide students with a sense that their work is important and relevant.

13. Provide access to computers and printers. Students need to have easy access to technology. When this access is provided, students can view the technology as another resource to assist them in the learning process.

Dissemination

At the end of the school year, the librarian requested that this writer provide a training session at a faculty meeting to discuss ways students can access the Internet and use the library as independent researchers. In September 1996, this training session will take place.

This writer is also a member of the district's technology committee. Plans are being made to provide a district-wide training session on incorporating the Internet into the classroom. The district is planning to install Internet access in all of the schools in the district during the summer. Training sessions for teachers, librarians, and staff will be given in the upcoming school year.

In addition, an article may be developed for publication in an educational or technology-related magazine. The article would describe experiences that this writer had in using technology to help students become independent researchers. The article would certainly emphasize that children can be taught to be responsible self-directed learners and that teachers can experience positive results when they help students to become independent learners.

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Appendix A

Questionnaire

Questionnaire

1. Do you have a computer at home? _____

2. If yes, what brand of computer do you have? (e.g. IBM Apple, other IBM clone, Other) _____

3. Do you have access to an online service? _____

4. If yes, what service are you using? (e.g. Prodigy, America Online, Compuserve, Internet, other) _____

5. Have you used this service to search for information for an assignment? _____

6. Do you know how to explore the Internet to obtain information for projects? _____

7. How old were you when you first started using a computer? _____

8. Have you taken any classes to learn about the computer? _____

9. Did you learn about the computer at school or home? _____

10. What do you typically use a computer for? (e.g. Word processing, Games, Online Service _____
Other, please specify) _____

Appendix B

Questionnaire

Questionnaire

1. Do you follow a specific sequence in researching a topic in order to produce a paper? ____yes ____no

2. Have you ever received instruction on the necessary sequence of activities for researching a topic? ____yes ____no

3. Do you regularly use an online service in order to research a topic? ____yes ____no

4. What steps do you take to research a topic?

A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

5. Can you explain why this sequence for researching topics is helpful ____yes ____no

Explain: (Please use the reverse side, if necessary)

Appendix C

Internet Usage Sign-up Chart

Internet Usage Sign-up Sheet

Date	Name	Time On	Time Off

Appendix D

Library Sign-up Sheet
Computer Card Catalogue and Online Magazine Sheet

Library Usage Sign-up Sheet
Computer Card Catalogue and Online Magazine Service

Date	Name	Time Out	Time In

Appendix E

Rubric

Rubric

Score

5 Students work independently and use a computerized card catalogue system. Students are using an online service to obtain primary information for their research topics.
Students narrow the information found on the Internet to their specific research topic with no help from the teacher. Students use technology to complete their reports.

4 Students work independently and use a computerized card catalogue system. Students are able to demonstrate the key points of using an online service to obtain primary information.
Students narrow the information found on the Internet to their specific research topic with little help from the teacher. Students use technology to complete their reports.

3 Students participate in using the computerized card catalogue system with help from the librarian or teacher to search for research topics. Students use the online service to obtain primary information for their research topics when they are on the Internet with the help of the teacher. With assistance from the teacher, students begin to narrow the information they found on the Internet. Students use technology to complete their reports.

2 Students do not use the computerized card catalogue system. Students are unable to go online by themselves to research topics. Students have difficulty locating sources for their research without direct input from the teacher. Students are unable to narrow their information found on the Internet without direct input from the teacher. Students seldom use technology to complete their reports.

1 Students are dependent on secondary sources for completing their research reports. Students go directly to the stacks to obtain their information. Students do not use the Internet to obtain information for their reports. Students do not use technology to complete their reports.

NS Students did not complete the assignment.

Appendix F

Parent Letter

March 1996

Dear Parents:

Your child is beginning the process of researching a topic of their choice. I have asked each child to select a contemporary topic. The Internet, through Scholastic, Inc., will be available to assist your child in this effort. Other resources, such as magazines, newspaper articles, videos, and personal interviews, may be used to help your child with this effort.

Library time will be made available each week for your child to work on their reports. However, additional trips to your local library may be necessary for your child to complete his/her report. Instructions on how to research topics and look up information on the Internet will be provided, along with a time table of due dates to keep your child on track with this project.

This research project is an excellent learning opportunity for your child, and I am very excited about the topics the children have chosen to research. If you have any questions concerning the requirements, please do not hesitate to contact me.

Best wishes,

Jayne Carper

Appendix G

Research Pamphlet

Name _____

Research Paper Checklist

	Assigned	Completed	Grade
1. Choose Subject/Topic	_____	_____	_____
2. Write Thesis Statement	_____	_____	_____
3. Preliminary Bibliography	_____	_____	_____
4. Preliminary Outline	_____	_____	_____
5. Note-taking	_____	_____	_____
6. Final Outline	_____	_____	_____
7. First Draft of Paper	_____	_____	_____
8. Proofreading/Polishing	_____	_____	_____
9. Documentation	_____	_____	_____
10. Final Copy	_____	_____	_____
11. Proofread	_____	_____	_____
12. Finishing Touches	_____	_____	_____

The Thesis Statement

It is important that your paper have a purpose and a theme. The theme allows you to stay focused when writing your paper and taking notes. The thesis statement usually has the following forms:

1. The thesis statement may ask a question.

    e.g. How does A I D S affect the human body?

2. The thesis statement may require you to prove or disprove a theory or idea.

    e.g. Will the flat tax make filing taxes easier?

3. The thesis statement may compare and contrast two or more things.

    e.g. ATT online service will out perform AOL's online service.

4. The thesis statement may be a summary of the information about your subject.

    e.g. Someone that commits first-degree murder and is over the age of 18 should be given the death penalty in every state.

The thesis statement is usually stated in the introduction or the first or second paragraph of your report.

Develop a Preliminary Bibliography

The bibliography serves as the list of books, encyclopedias, magazines, films, electronic data, and other sources you might use to complete your research paper.

The first step is to go to the library and use the computerized card catalog, the Reader's Guide to Periodical Literature, or the library's online magazine service (if available).

As you find potentially useful information, record the information on a 3x5 card.

Information Needed for Books:

1. The call number should be listed in the upper right corner of your index card.

2. List the author, last name first, initials. (Alvestad, K. A.)

3. If there is an editor, list the name followed by (Ed.). (J. J. Hirschbuhl (Ed.))

4. If there are two authors, list the name of the first author, then the second author, using a comma and an ampersand sign in between the two authors.

(Alvestad, K. A., & Wigfield, A. L.)

5. If there are three authors, list the name of the each author as follows:

(Genshaft, J. L., Bireley, M., & Hollinger, C. L.)

6. Write the title of the book and underline it. Only capitalize the first word of the title. All of the other words in the title are in initial caps.

Serving gifted and talented students

7. List the city, state and publisher: (Austin, TX: PRO-ED, Inc.

8. The complete bibliography reference for a book would appear as follows:

Genshaft, J. L., Bireley, M., & Hollinger, C. L. (1995). Serving gifted and talented students. Austin, TX: PRO-ED, Inc.

Information Needed for Magazines

1. List the author, if there is one, last name first. (Peck, K. L.)

2. List the year and Month of the magazine and put it in parenthesis (1994, April)

3. List the title of the magazine. Capitalize only the first word of the title. (Why use technology?)

4. List the name of the Magazine, volume number, and issue number. Underline the magazine and volume number

(Educational Leadership, 15(7)

5. If you are using a specific article, give the page numbers after the issue number.

(Educational Leadership, 15(7), pp. 11-14

5. A complete bibliography card for a magazine would appear as follows:

Peck, K. L. & Dorricott, D. (1994, April). Why use technology? Educational Leadership,15(7), pp. 11-14

Preliminary Outline

The preliminary outline is written after you have chosen your topic, written your thesis statement, and begun a cursory review of material for your topic. The purpose of the preliminary outline is to serve as a guide to keep you focused on your topic when you begin to take notes for your paper.

In the first outline, you will list all of the material you want to cover in your topic and then you will need to organize the material under main and subtopics. The main topics are the major points you are covering in your research. The subtopics provide additional information about the main topic. You can break your subtopics down further by adding details. Details provide specific points concerning your subtopic.

The preliminary outline may be either a topic outline or a sentence outline. You will use a topic outline for your preliminary and final outlines. The topical outline should appear as follows:

I. Land Regions
   A. Island
      1. Republic of Ireland
      2. Northern Ireland
   B. Seacoasts, Mountain Ranges, Central Plains
   C. Counties
      1. Independent part of Ireland
      2. United Kingdom

II. Culture

Note-Taking

All notes should be written on cards and should contain two kinds of information: (1) the fact or opinion being noted, and (2) the exact source from which you took it.

This second item is ABSOLUTELY NECESSARY, since you will be required to identify the sources of your material in the bibliography. This usually means you must identify the author, title, and page number of the book or article from which your note was taken.

Specifics:

1. Only one or two notes should be placed on a card.
2. Leave enough space at the top of each card so that you may write in a subject heading when you group your cards and develop your final outline.
3. Your notes may contain statement of fact or of opinion, in your own words or in the words of the author from whose work they came.
4. IF THE WORDING AS WELL AS THE CONTENT IS TAKEN FROM A SOURCE,YOU MUST USE QUOTATION MARKS—BOTH ON YOUR NOTECARD AND, LATER, IN YOUR PAPER. Plagiarism is a very serious offense, and anyone caught plagiarizing will receive a zero on their report.
5. Whenever possible, your notes should be summaries of the source material and not direct quotations. If you use too many quotes, it will result in wordiness and will give the impression that you just "strung" together statements without any real thought.
6. Be careful that your summaries do not distort the meaning when taken out of their original context.
7. REMEMBER: These notes are designed to teach you good research habits and to help you from making beginners' mistakes.

Appendix H

Boolean Handouts

Boolean Operators

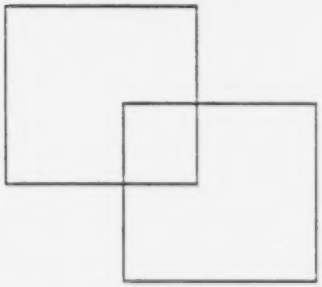
Use the computer to find the results from two different sets of search terms. Record the terms searched and number of records found for each Boolean operation.

1. Search terms: _____ _____
   Number of records: AND _____ OR _____ AND NOT _____

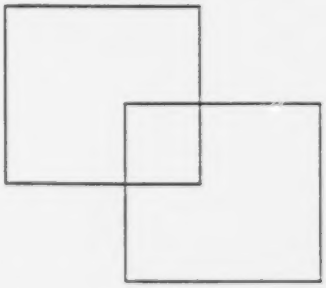
2. Search terms: _____ _____
   Number of records: AND _____ OR _____ AND NOT _____

3. Fill in the Venn diagram to show the results of each Boolean operation.

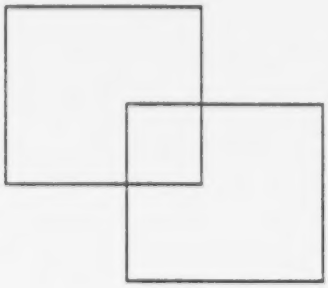
A and B



A or B

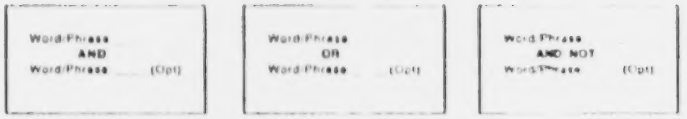


A and not B



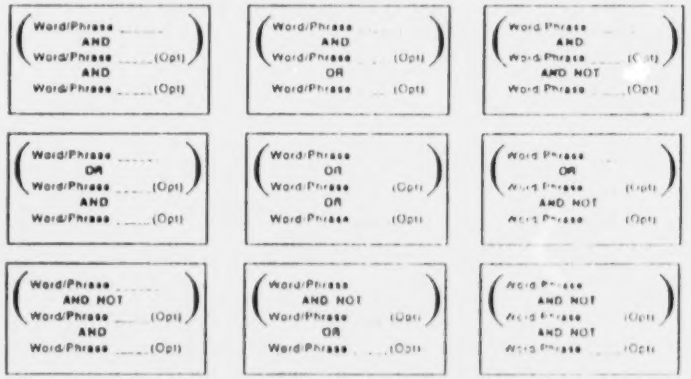
Two key words

If you have set up your system so that you have two key words, you can have three different combinations.



Three key words

If you have set up your system so that you have three key words, you can have nine different combinations. (The program always considers the first two key words together before it considers the third key element.)



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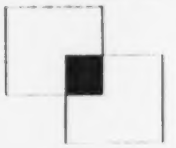
Venn Diagrams

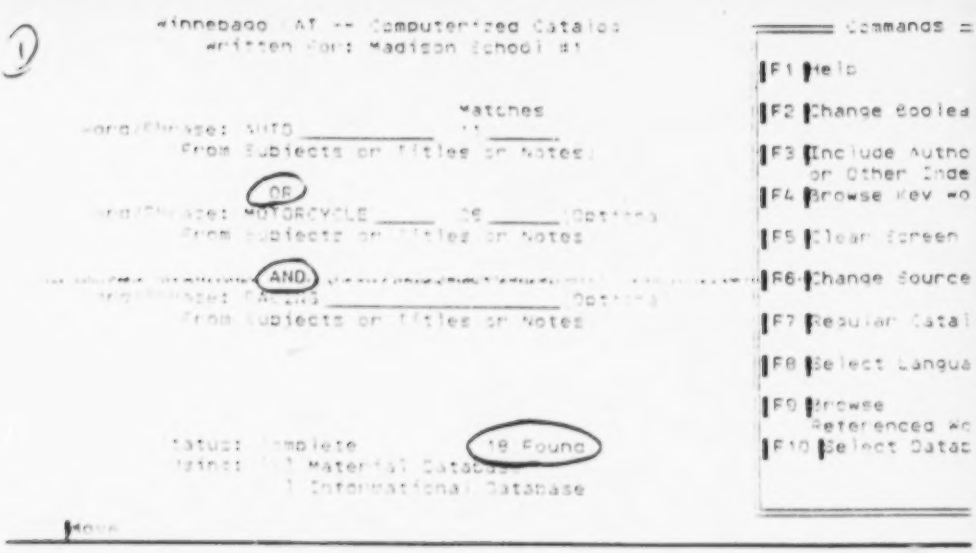
A and B



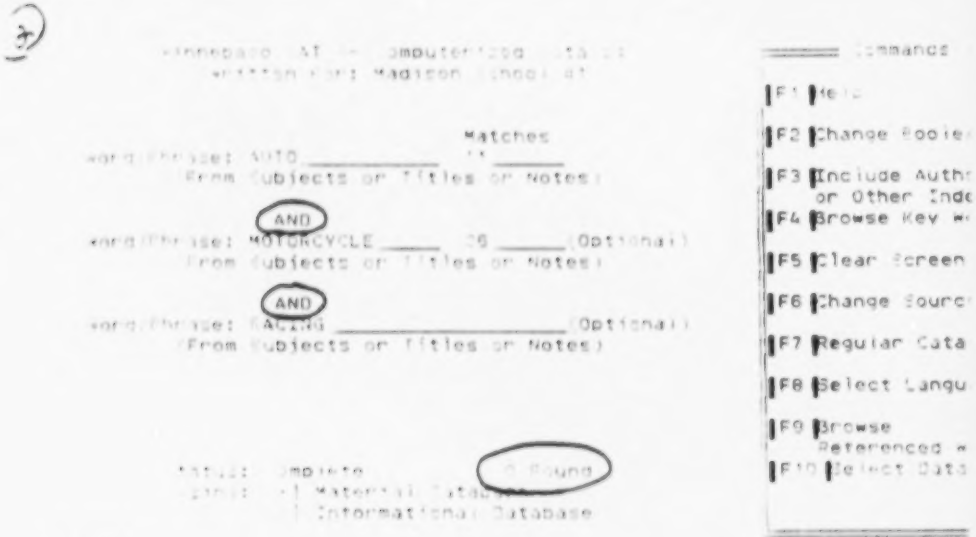
A or B

A and not B

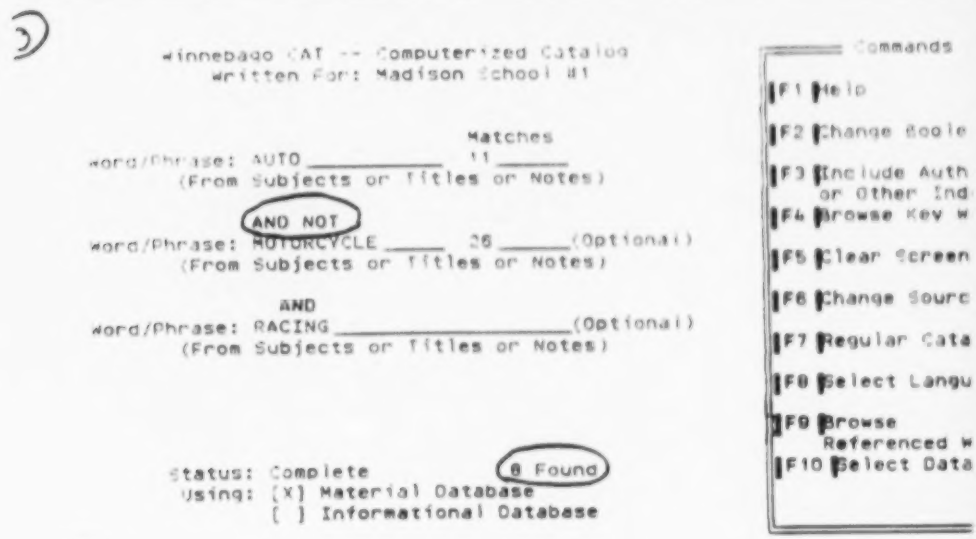
1



2



3



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Appendix I

Conduct and Ethics Statement

Conduct and Ethics Statement

In order to access the Internet and other on-line services provided by Madison No. One, I agree to adhere to the following guidelines:

1. I will only use the on-line service for teacher-approved academic or research projects.
2. I will not access on-line services that are vulgar, pornographic, or unrelated to my school project.
3. I understand that e-mail can be read by all parties.
4. I will not disclose any personal information, including my home address and telephone number, when using e-mail.
5. I will not disclose any personal information, including home address and telephone number, of any other person.
6. I will never use obscene, insulting, vulgar, or abusive language on e-mail.
7. I understand that any administrator, teacher, or the school's representative has the right to review any e-mail, material accessed on the Internet, or other available services and judge the appropriateness of the material.
8. I will always be courteous to my classmates and other users when using on-line services.
9. I understand that if I violate any of these agreements, all of my computer privileges at Madison No. One will be revoked, and I will be disciplined according to school and district policy.

_____ _____

Name Date

_____

Teacher